QUARTERLY REPORT #5

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# APPLICATIONS OF HCMM DATA

# TO

# SOIL MOISTURE SNOW

# AND

# ESTUARINE CURRENT STUDIES





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A. Problems

The lack of HCMM data has been somewhat alleviated. Imagery has been received covering all four test sites. However, to properly assess the objectives of the Cooper and Potomac River test sites aircraft coverage is required. Since these necessary overflights are few, it is hoped that JSC can schedule aircraft overflights.

B. Accomplishments

Mr. John A. Pritchard has written programs to display HCMM data in image or character formats. These formats are available in the following scales:

| Images | Character (Computer Printout) |
|---|---|
| 1:5,000,000 | 1:5,000,000 |
| 1:4,000,000 | 1:4,000,000 |
| 1:2,500,000 | 1:2,500,000 |
| 1:1,000,000 | 1:1,000,000 |
| 1:500,000 | 1:500,000 |
| | 1:250,000 |

Regarding visible data, the look-up table can be arranged on a basis of albedo or gradient values. IR look-up tables are based on predetermined temperature ranges, e.g., 0.0° to 1.0°C, and will be fixed at a particularly shade of gray for the image. Samples of some of the computer-processed data are enclosed (images and printout).

We have not had an opportunity to thoroughly examine the data coverage of our four test sites. However, we have noted the excellent detail the HCMR provides of "heat islands." Even population centers under 50,000 are sharply detailed. The final remnant of Lake Erie ice, located near Buffalo, was apparent in both the visible and thermal

bands of the May 11 scene (ID A001518440).

C. Significant Results

None.

D. Publications

None.

E. Recommendations

It is recommended that aircraft flights be scheduled over the Potomac and Cooper River test areas tc meet our objective of tidal current assessment in estuaries. Previous flights produced unuseable data.

F. Funds expended to date

| | |
|---|---|
| Balance of funds | $3.1K |
| Spent this period | 0.0K |
| Funds remaining | $3.1K* |

*We expect to spend 2.5K at our Luverne, Minn., test site to cover expenses involved in the installation of an Idaho Industrial Instruments, Inc., RSG½ soil moisture/snow moisture gage and in a winter soil survey. The scheduled field exercise is for December 18-22, 1978.

G. Data Utility

Tapes have been received for three scenes, viz., 11 May 78, east coast, ID A001518440; 31 May 78, west coast, ID A003541320; and north central U.S., 6 June 78. East coast tape covered Cranberry test site only. Still missing are taped data of our Potomac and Cooper River test sites. Prints and positive transparencies have been received for the following dates: 11 May, 15 May, 5 June, 6 June, 10 June, and 11 June. Prints and transparencies have been of good quality.

H. Future Plans

The immediate future involves the field survey at our Luverne test site during 18-22 December. Dr. McGinnis and Mr. Berg will conduct the soil survey (assisted by USDA personnel) and participate in the installation of the RSG½ soil moisture/snow moisture gage.